

Atmospheric Science



Gary R. Huffines, Maj, USAF

PhD, Texas A&M University, 1999

Assistant Professor of Atmospheric Physics,
Department of Engineering Physics
(937) 255-3636 x4511
Gary.Huffines@afit.edu

Major fields of study include lightning processes and protection of aircraft, facilities, and personnel from lightning hazards. This is combined with 17 years of experience in Air Force weather including space weather support to NORAD and scientific support to AFRL.



Michael K. Walters, Lt Col, USAF

Ph.D., Texas A&M University, 1988

Associate Professor of Atmospheric Physics,
Department of Engineering Physics
(937) 255-3636 x4681
Michael.Walters@afit.edu

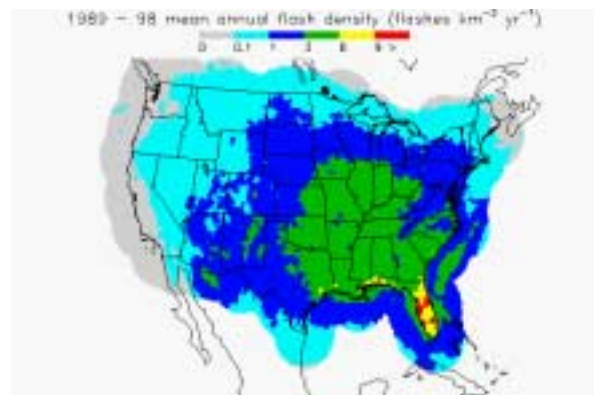
Lt. Col Walters' research focuses on applications of numerical weather prediction and mesoscale numerical modeling to improve operational weather support to DoD customers. Lt Col Walters has over 16 years experience in Air Force Weather providing centralized weather support to DoD contingencies, and providing staff meteorological support to the Assistant Secretary of the Air Force. He has been on the AFIT faculty since 1995 and has advised over 20 M.S. theses.

Research Areas

- Dynamics
- Numerical Weather Prediction
- Boundary Layer Processes
- Atmospheric Transmission
- Microbursts
- Lightning
- Severe Weather Phenomena
- Climatology

Recent and Ongoing Research

Recent research activities have focused on a variety of meteorological areas. In particular, the 5th generation Mesoscale Model (MM5) has been successfully added to our suite of available tools and new efforts in the areas of lightning and climatology have greatly enhanced our support capabilities for a variety of programs with both military and civilian applications. These programs include the Space Shuttle, C-17 Globemaster III, B2 Spirit (Stealth Bomber), nuclear proliferation treaty verification, and many others.



Mean annual flash densities for cloud-to-ground lightning flashes from 1989 – 98.



AFIT's weather computer laboratory provides a fantastic teaching and research environment.

Research Facilities

A weather computer laboratory that includes several Sun workstations and PCs is available for student use. A variety of software packages including MM5, General Meteorological Package (GEMPAK), Man computer Interactive Data Access System (McIDAS), Interactive Data Language (IDL), WSR-88D Algorithm Testing and Display System (WATADS) and others are available to enhance the research efforts. We have two Next Generation (NEXRAD) Principal User Processors (PUPs) that provide us with dedicated access to local radar and dialup capabilities to any of the other NEXRAD sites worldwide. Real-time satellite reception of high-resolution satellite imagery is also available. The near future holds the prospect of receiving real-time lightning data for the Continental United States. Access to the National Climatic Data Center and the Air Force Combat Climatology Center databases makes the research possibilities at AFIT practically endless.



Ronald P. Lowther, Lt Col, USAF
Ph.D., Texas A&M University, 1998

Assistant Professor of Atmospheric Physics,
Department of Engineering Physics
(937) 255-3636 x4645
Ronald.Lowther@afit.edu

Lt Col Lowther's research interests are in the fields of applied climatology, climate change, long-range seasonal forecasting, and applied climate effects on DoD operations and weapon systems. Lt Col Lowther has over 25 years of experience in applications of meteorology in support of Air Force needs. Previously, he investigated environmental effects on new DoD weapon systems at the USAF High Speed Test Track facility, supported the National Reconnaissance Office and multiple U.S. Intelligence agencies with their climatological data research needs, and served as the Assistant Director of Operations at the AF Combat Climatology Center where he coordinated DoD climate data issues with multiple NOAA research centers.